

What is claimed is:

1. A microsurgical balloon which comprises:
an elongated, inflatable balloon having an outer surface and
defining a longitudinal axis, wherein said surface of said balloon is
distanced radially from said axis when said balloon is in an inflated
configuration and said surface is collapsed along said axis when said
balloon is in a deflated configuration;
at least one incising component mounted on said surface of said
balloon;
a pad having an outer surface, wherein said pad is positioned on
said balloon substantially parallel to and juxtaposed with said incising
component, said pad being located to engage said incising component
with said outer surface of said pad to prevent damage to said balloon
by said incising component when said balloon is in a deflated
configuration.
2. A balloon as recited in claim 1 wherein said pad comprises a
plurality of axially aligned sections.
3. A balloon as recited in claim 1 wherein said pad is formed on
said outer surface of said balloon as a homogeneous structure with said
balloon.
4. A balloon as recited in claim 1 wherein said incising component
comprises a base and an elongated blade, and further wherein said base is
mounted on said outer surface of said balloon, and said elongated blade is
mounted on said base.
5. A balloon as recited in claim 4 wherein said pad is located to
engage said base when said balloon is in its deflated configuration.

6. A balloon as recited in claim 1 wherein a pad is positioned on either side of said incising component.

7. A balloon as recited in claim 1 wherein said balloon includes a plurality of incising components mounted on said balloon, axially oriented and substantially parallel to said axis of said balloon.

8. A balloon as recited in claim 1 wherein said balloon includes a plurality of incising components mounted azimuthally on said balloon.

9. A balloon as recited in claim 4 wherein said base is formed with a plurality of stiffeners.

10. A system for protecting a balloon in the vasculature of a patient during a vessel dilation procedure, said system comprising:

an elongated, inflatable balloon having an outer surface and defining a longitudinal axis, wherein said surface of said balloon is distanced radially from said axis when said balloon is in an inflated configuration and said surface is collapsed along said axis when said balloon is in a deflated configuration;

an inflation means for moving the balloon between its deflated configuration and its inflated configuration;

an incising means mounted on said outer surface of said balloon for incising the vessel when said balloon is in its inflated configuration;

a protective means positioned on said outer surface of said balloon substantially parallel to and juxtaposed with said incising means, said protective means being located to engage with said incising means to prevent damage to said balloon by said incising means when said balloon is in its deflated configuration.

11. A system as recited in claim 10 wherein said protective means comprises a pad, and further wherein said pad comprises a plurality of axially aligned sections.

12. A system as recited in claim 10 wherein said protective means
5 and said balloon are a homogeneous structure.

13. A system as recited in claim 10 wherein said incising means comprises a base and an elongated blade, and further wherein said base is mounted on said outer surface of said balloon, and said elongated blade is mounted on said base.

10 14. A system as recited in claim 13 wherein said protective means is located to engage said base when said balloon is in its deflated configuration.

15. A system as recited in claim 10 wherein a pad is positioned on either side of said incising component.

15 16. A system as recited in claim 10 wherein said incising means comprises a plurality of elongated blades mounted on said balloon, axially oriented and substantially parallel to said axis of said balloon.

17. A system as recited in claim 13 wherein said base is formed with a plurality of stiffeners.

18. A method for protecting a balloon in the vasculature of a patient during a vessel dilation procedure which comprises the steps of:

5 providing an elongated, inflatable balloon having an outer surface and defining a longitudinal axis, wherein said surface of said balloon is distanced radially from said axis when said balloon is in an inflated configuration, and said surface is collapsed along said axis when said balloon is in a deflated configuration, with at least one incising component mounted on said surface of said balloon, and at least one pad having an outer surface, wherein said pad is positioned
10 on said balloon substantially parallel to and juxtaposed with said incising component, and further wherein said pad is located to engage said incising component with said outer surface of said pad to prevent damage to said balloon by said incising component when said balloon is in its deflated configuration;

15 inserting said balloon in its deflated configuration into the vasculature of a patient;

inflating said balloon into its inflated configuration for emplacement of said incising component in said vasculature of said patient; and

20 deflating said balloon to return said balloon substantially to its deflated configuration for removal of said incising component from said vasculature of said patient.

19. A method as recited in claim 18 wherein said pad and said balloon are a homogeneous structure.

25 20. A method as recited in claim 18 wherein a pad is positioned on either side of said incising component.

21. A method as recited in claim 18 wherein said incising component comprises a base and an elongated blade, and wherein said base is mounted on said outer surface of said balloon, and said elongated blade is mounted on said base.

5 22. A method as recited in claim 20 wherein said base is formed with a plurality of stiffeners.